WHAT IS CLAIMED IS:

1. A battery charger comprising:

a first input configured to accept DC power from an AC adapter;

a second input configured to accept DC power from a Universal Serial Bus power interface;

a first output configured to provide power to a system load;

a second output configured for connection to a battery;

a first isolation circuit coupled between the first input and the first output to prevent current flow in a reverse direction to the first input;

a second isolation circuit and a current sensing circuit coupled in series between the second input and the first output, wherein the second isolation circuit prevents current flow in a reverse direction to the second input, and the current sensing circuit measures the current flow from the Universal Serial Bus power interface;

a bi-directional pass element coupled between the first output and the second output, wherein the bi-directional pass element conducts a charging current in a first direction to the second output during charging of the battery and conducts a discharging current to a second direction from the second output during discharging of the battery; and

a charging controller configured to linearly regulate the charging current of the bi-directional pass element based on the current flow from the Universal Serial Bus power interface.

2. The battery charger of Claim 1, further comprising a current limiting circuit coupled between the Universal Serial Bus power interface and the second input.

3. The battery charger of Claim 1, further comprising:

a first bypass transistor coupled across the first isolation circuit; and

a second bypass transistor coupled across the second isolation circuit, wherein the first bypass transistor and the second bypass transistor are selectively enabled to couple an output of the AC adapter or an output of the Universal Serial Bus power interface to the first output.

4. A battery charger comprising:

a dual input source selector with a first input coupled to a primary power source and a second input coupled to a secondary power source, wherein the dual input source selector selectively couples the primary power source or the secondary power source to a system power terminal of an electronic device;

a current sensor coupled between the secondary power source and the system power terminal to measure a supply current from the secondary power source; and

a battery controller coupled between the system power terminal and a battery of the electronic device, wherein a bi-directional device in the battery controller conducts a charging current in a first direction from the system power terminal to the battery during charging of the battery and conducts a discharging current in a second direction from the battery to the system power terminal during discharging of the battery.

5. The battery charger of Claim 4, wherein the primary power source is provided by an AC adapter and the secondary power source is provided by a USB power interface.

6. The battery charger of Claim 4, further comprising a current limiter coupled between the secondary power source and the second input to ensure that the supply current is less than a predetermined level.

7. The battery charger of Claim 4, wherein the battery controller automatically enters a discharge mode when the supply current exceeds a predefined level.

8. The battery charger of Claim 4, wherein the dual input source selector automatically disconnects the secondary power source from the system power terminal when power is available from the primary power source.

9. The battery charger of Claim 4, wherein the battery controller linearly regulates the charging current and limits the charging current to ensure that the supply current is less than a reference level.

10. The battery charger of Claim 9, wherein the reference level is selectable from a plurality of predefined limits.

11. The battery charger of Claim 4, wherein the bi-directional device fully disconnects the battery from the system power terminal during a disable mode.

12. A battery controller comprising:

a bi-directional pass element coupled between a system power terminal and a battery terminal;

a battery control loop that senses a voltage difference between the system power terminal and the battery terminal, wherein the battery control loop outputs a feedback control signal based on the voltage difference; and

a pass element driver that accepts the feedback control signal, wherein the pass element driver configures the bi-directional pass element to conduct a charging current in a first direction when the voltage of the system power terminal is greater than the voltage of the battery terminal or to conduct a discharging current an opposite direction when the voltage of the system power terminal is less than the voltage of the battery terminal.

13. The battery controller of Claim 12, wherein the bi-directional pass element is a P-channel enhancement mode MOSFET with a source terminal coupled to the system power terminal and a drain terminal coupled to the battery terminal.

14. The battery controller of Claim 12, wherein the bi-directional pass element is a MOSFET with a configurable body contact.

15. The battery controller of Claim 12, wherein the bi-directional pass element is a P-channel enhancement mode MOSFET with a configurable body contact, wherein the body contact is coupled to the system power terminal during a charging mode, and wherein the body contact is coupled to the battery terminal during a discharging mode.

16. The battery controller of Claim 15, further comprising a comparator coupled across the bi-directional pass element to sense the voltage polarity of the bi-directional pass element and to connect the body contact accordingly.

17. The battery controller of Claim 15, further comprising a switching diode coupled across the bi-directional pass element to assist in a transient response of the battery.

18. The battery controller of Claim 15, wherein the body contact connects to a channel terminal with a relatively higher voltage during a shutdown mode to prevent current flow in a body diode and thereby fully disconnecting the battery from the system power terminal.

19. The battery controller of Claim 12, wherein the charging current is linearly regulated.

20. The battery controller of Claim 12, wherein the pass element driver controls a gate voltage with respect to a body terminal of the bi-directional pass element to control the level of the charging current or the discharging current.

21. The battery controller of Claim 12, wherein power is selectively provided to the system power terminal by an AC adapter or a USB power interface.

22. The battery controller of Claim 21, further comprising:

a current sensor that outputs a current sense voltage indicative of the level of current supplied by the USB power interface to the system power terminal; and

an error amplifier that compares the current sense voltage to a reference level and overrides the feedback control signal to reduce the charging current when the current sense voltage exceeds the reference level.

23. A method for controlling battery power comprising the acts of:

selectively providing a first external power source or a second external power source to a device coupled to a system power terminal;

coupling an internal battery to the system power terminal via a series-connected bi-directional transistor;

charging the internal battery by regulating the bi-directional transistor to conduct a charging current in a first direction from the system power terminal to a positive battery terminal during a charging mode; and

discharging the internal battery by regulating the bi-directional transistor to conduct a discharging current in a second direction from the positive battery terminal to the system power terminal during a discharging mode.

24. The method of Claim 23, further comprising the acts of:

sensing a supply current from the second external power source; and

linearly adjusting the charging current to prevent the supply current from exceeding a predefined threshold.

25. The method of Claim 23, wherein the impedance of the bi-directional transistor varies to limit the level of the charging current or the discharging current.

26. The method of Claim 23, wherein the impedance of the bi-directional transistor varies inversely with the discharging current level during the discharging mode.

27. The method of Claim 23, wherein the charging mode occurs when the voltage on the system power terminal is greater than the voltage of the internal battery.

28. The method of Claim 23, wherein the discharging mode occurs when the voltage on the system power terminal is less than the voltage of the internal battery.

29. The method of Claim 23, wherein the discharging mode occurs in response to a discharge command.

30. A Universal Serial Bus battery charger comprising:

means for selectively coupling a Universal Serial Bus power interface to a system power terminal of a portable device;

means for charging and discharging a battery through a bi-directional element that couples the battery to the system power terminal;

means for sensing an input current at the Universal Serial Bus power interface; and

means for linearly controlling the current conducted by the bi-directional element to ensure that the input current is less than a predetermined limit.